



## Monthly Notes of the Alternative Cosmology Group – September 2010

The ACG Webmaster who distributes this newsletter to subscribers would prefer not to receive related correspondence.

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The ACG newsletter is distributed gratis to subscribers. Get onto our mailing list without obligation at [www.cosmology.info/newsletter](http://www.cosmology.info/newsletter). The current newsletter is a review of 1017 papers published on arXiv under astro-ph, together with 589 under gen-phys, for the month of August, 2010. We now include papers archived elsewhere, provided access is full and open. The Alternative Cosmology Group draws its mandate from the open letter published in *New Scientist*, 2004 ([www.cosmologystatement.org](http://www.cosmologystatement.org)), and these monthly notes seek to publicise recently published empirical results that are aligned with that ethos. In other words, what observations seem anomalous in terms of the Standard Model of Cosmology? We prefer observational results and tend to avoid complete cosmologies and purely theoretical work. Discussion of method is welcome. If you would like to suggest recently published or archived papers for inclusion, please send the arXiv, viXra or other direct reference and a brief exposition to Hilton Ratcliffe ([hilton@hiltonratcliffe.com](mailto:hilton@hiltonratcliffe.com)). Note that our spam filter rejects slash and colon in the text, so please write web addresses commencing “www”.

### **I. Dark Matter Awareness Week**

Thanks are due to Paola Salucci for letting us know about the following initiative. In Paola’s words, “mainstream cosmology is ready to consider the flagship of DM, that is, lambda-CDM, flawed.”

*Dark Matter Awareness Week, 1-8 December 2010. “Dark Matter in Galaxies”, a Journal Club Seminar at your institute. This event aims to increase the basic knowledge on “The Dark Matter Phenomenon in Galaxies” among (the large community of) Physicists and Astrophysicists that, theoretically, observationally, experimentally or with simulations, are involved or just interested in this issue. The full details are available at <http://darkmattergalaxies.selfip.org>*

### **II. CMBR anomalies**

1. **Title: Parametric tension between even and odd multipole data of WMAP power spectrum: unaccounted contamination or missing parameters?**  
**Authors: [Jaiseung Kim](#), [Pavel Nasels](#)**  
[arXiv:1008.1496](http://arXiv:1008.1496)

Quote: "There exist power contrast in even and odd multipoles of WMAP power spectrum at low and intermediate multipole range. This anomaly is explicitly associated with the angular power spectrum, which are heavily used for cosmological model fitting. Having noted this, we have investigated whether even(odd) multipole data set is consistent with the WMAP concordance model. Our investigation shows WMAP concordance model does not make a good fit for even(odd) multipole data set, and there exist tension between two data subsets. Noting tension is highest in primordial power spectrum parameters, we have additionally considered a running spectral index, but find tension increases to even a higher level. We believe these parametric tensions may be indications of unaccounted contamination or imperfection of the model."

2. **Title: A comprehensive overview of the Cold Spot**

**Authors: P. Vielva**  
**arXiv:1008.3051**

Quote: "The report of a significant deviation of the CMB temperature anisotropies distribution from Gaussianity (soon after the public release of the WMAP data in 2003) has become one of the most solid WMAP anomalies."

3. **Title: Are all perturbations created equal? An analysis of the WMAP 5- and 7-year data without inflationary prejudice**

**Authors: Eirik Gjerløw, Øystein Elgarøy**  
**arXiv:1008.4471**

Quote: "We submit recent claims of a semi-significant detection of primordial tensor perturbations in the WMAP data to a closer scrutiny. Our conclusion is in brief that no such mode is present at a detectable level once the analysis is done more carefully."

### III. **Redshift**

1. **Title: An Explanation of Redshift in a Static Universe**

**Authors: Lyndon Ashmore**  
**viXra:1008.0074**

Quote: "In an expanding universe one would expect the average temperature of the universe to fall as it expands - but a review of the Doppler parameters of the Hydrogen clouds in Quasar spectra shows that contrary to this, they are increasing in temperature (or at least, becoming increasingly disturbed) as the universe ages. Addition-ally, in an expanding universe, hydrogen clouds must become further apart with time, so, as redshift increases, the clouds would be closer together. Instead, the evidence is that, on average, they are evenly spaced up to a redshift of one - if not beyond. How can this be so if the universe is expanding?"

2. **Title: A Proposed Recoil Interaction Between Photons and the Electrons in the Plasma of Intergalactic Space Leading to the Hubble Constant and CMB**

**Authors: Lyndon Ashmore**  
**viXra:1008.0073**

Quote: "The small amount of energy transferred to the electron by recoil is radiated as bremsstrahlung with a wavelength in the microwave region."

3. **Title: Observational Tests for Oscillating Expansion Rate of the Universe**

**Authors: Koichi Hirano, Zen Komiya**  
**arXiv:1008.4456**

Quote: "According to a Fourier analysis, the galaxy number count  $N$  from redshift  $z$  data indicates that galaxies have preferred periodic redshift spacings."

## IV. Stellar Evolution

The following study by a team led by Mike Feast of the University of Cape Town, has some potentially important implications for Arpian astrophysics. They used the Southern African Large Telescope to study the Large Magellanic Cloud, and found a radial metallicity gradient that could indicate that older stars are more prevalent at the periphery than at the nucleus of the galaxy. Are stars ejected from galaxian nuclei?

1. **Title: Is there a metallicity gradient in the LMC?**

**Authors:** [Michael W Feast](#), [Oyirwoth P Abedigamba](#), [Patricia A Whitelock](#)  
[arXiv:1008.2274](#)

Quote: *“In the outer part of the LMC the C/M ratio drops dramatically. The most likely reason for this is that the proportion of older stars increases in the outer regions. The mean metallicity of the inner AGB star population estimated from the C/M ratio is lower than for intermediate age LMC clusters and suggest that this population is in the mean older than the clusters and has a mean age which falls in the LMC cluster age gap.”*

## V. Black Holes

1. **Title: X-ray study of HLX1: intermediate-mass black hole or foreground neutron star?**

**Authors:** [Roberto Soria](#), [Luca Zampieri](#), [Silvia Zane](#), [Kinwah Wu](#)  
[arXiv:1008.3382](#)

Quote: *“We re-assess the XMM-Newton and Swift observations of HLX1, to examine the evidence for its identification as an intermediate-mass black hole. We show that the X-ray spectral and timing properties are equally consistent with an intermediate-mass black hole in a high state, or with a foreground neutron star with a luminosity of about a few times  $10^{32}$  erg/s  $\sim 10^{-6} L_{\text{Edd}}$ , located at a distance of about 1.5 to 3 kpc. Contrary to previously published results, we find that the X-ray spectral change between the two XMM-Newton observations of 2004 and 2008 (going from power-law dominated to thermal dominated) is not associated with a change in the X-ray luminosity. The thermal component becomes more dominant (and hotter) during the 2009 outburst seen by Swift, but in a way that is consistent with either scenario.”*

## VI. Method

1. **Title: Taking "The Road Not Taken": On the Benefits of Diversifying Your Academic Portfolio**

**Authors:** [Abraham Loeb](#)  
[arXiv:1008.1586](#)

Quote: *“It is common practice among young astrophysicists these days to invest research time conservatively in mainstream ideas that have already been explored extensively in the literature. This tendency is driven by peer pressure and job market prospects, and is occasionally encouraged by senior researchers. Although the same phenomenon existed in past decades, it is alarmingly more prevalent today because a growing fraction of observational and theoretical projects are pursued in large groups with rigid research agendas. In addition, the emergence of a “standard model” in cosmology (albeit with unknown dark components) offers secure “bonds” for a safe investment of research time. In this short essay, which summarizes a banquet lecture at a recent conference, I give examples for both safe and risky topics in astrophysics (which I split into categories of “bonds,” “stocks,” and “venture capital”), and argue that young researchers should always allocate a small fraction of their academic portfolio to innovative projects with risky but potentially highly profitable returns. In parallel, selection and promotion committees must find new strategies for rewarding candidates with creative thinking.”*

2. **Title: How to Falsify the GR+LambdaCDM Model with Galaxy Redshift Surveys**

**Authors:** [Viviana Acquaviva](#), [Eric Gawiser](#)

[arXiv:1008.3392](#)

Quote: "A wide range of models describing modifications to General Relativity have been proposed, but no fundamental parameter set exists to describe them. Similarly, no fundamental theory exists for dark energy to parameterize its potential deviation from a cosmological constant. This motivates a model-independent search for deviations from the concordance GR+LambdaCDM cosmological model in large galaxy redshift surveys. We describe two model-independent tests of the growth of cosmological structure, in the form of quantities that must equal one if GR+LambdaCDM is correct. The first, epsilon, was introduced previously as a scale-independent consistency check between the expansion history and structure growth. The second, upsilon, is introduced here as a test of scale-dependence in the linear evolution of matter density perturbations. We show that the ongoing and near-future galaxy redshift surveys WiggleZ, BOSS, and HETDEX will constrain these quantities at the 5-10% level, representing a stringent test of concordance cosmology at different redshifts. When redshift space distortions are used to probe the growth of cosmological structure, galaxies at higher redshift with lower bias are found to be most powerful in detecting deviations from the GR+LambdaCDM model."

**3. Title: A Hypothesis on the Nature of Light**

**Authors:** [J. Arnold](#)

[viXra:1008.0093](#)

Quote: "It is proposed that light is at absolute rest, its apparent motion being the reflection of the motion of mass in time. The hypothesis resolves the paradox of the apparent wave/particle duality of light, accounts for its speed being invariant and a limit, explains numerous other peculiarities of its behavior, and identifies the motion of mass in time as the source of gravitational energy."

**4. Title: Doppler Shift Reveals Light Speed Variation**

**Authors:** [Stephan J. G. Gift](#)

[viXra:1008.0046](#)

Quote: "Light speed variation relative to a moving observer occurring according to classical velocity composition is demonstrated using Doppler Shift. This directly contradicts the light speed invariance postulate of special relativity and confirms ether drift."

**5. Title: One-Way Light Speed Determination Using the Range Measurement Equation of the GPS**

**Authors:** [Stephan J. G. Gift](#)

[viXra:1008.0035](#)

Quote: "The one-way speed of light is determined using the range measurement equation of the Global Positioning System. This equation has been rigorously and extensively tested and verified in the Earth-Centred Inertial frame, a frame that moves with the Earth as it revolves around the Sun but does not share its rotation. The result is a simple demonstration of one-way light speed anisotropy depending on the direction of propagation relative to the rotating Earth that contradicts the principle of light speed constancy."

**6. Title: Peer-review in a world with rational scientists: Toward selection of the average**

**Authors:** [Stefan Thurner](#), [Rudolf Hanel](#)

[arXiv:1008.4324](#)

Quote: "Peer review as a selection mechanism is hard to evaluate in terms of its efficiency. Serious efforts to understand its strengths and weaknesses have not yet lead to clear answers. In theory peer review works if the involved parties (editors and referees) conform to a set of requirements, such as love for high quality science, objectiveness, and absence of biases, nepotism, friend and clique networks, selfishness, etc. If these requirements are violated, what is the effect on the selection of high quality work?"

**VII. Titles of the month**

**Title:** The general theory of porcupines, perfect and imperfect **Authors:** [Latham Boyle](#) [arXiv:1008.4997](#)

